This Listing of Claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A method for fabricating a Bi ~~thin~~ film, ~~wherein a Bi thin film is formed by~~ comprising electrodepositing the Bi film from a Bi solution onto a substrate ~~in the~~ at a deposition ~~ratio~~ rate of 0.1 – 10 μm/min by applying a current within a range of 1 – 100 mA to the Bi solution at room temperature.

2. (Original) The method of claim 1, wherein the Bi solution is $Bi(NO_3)_3 \cdot 5H_2O$.

3. (Currently Amended) The method of claim 1, wherein the ~~fabricated~~ Bi ~~thin~~ film has a MR (magnetoresistance) ratio of approximately 600 % at room temperature and not less than 80,000 % at 4 K ~~when~~ under a magnetic field of 9T ~~is applied~~.

4. (Currently Amended) The method of claim 1, further comprising:

depositing a Pt or an Au underlayer ~~to be used~~ as ~~an~~ a working electrode onto the substrate before depositing the Bi film, ~~so as to have~~ wherein the Pt or the Au underlayer has a thickness within a range of 50 – 500 Å ~~before depositing a Bi thin film~~.

5. (Original) The method of claim 1, wherein carbon is used as a counter electrode.

6. (Currently Amended) The method of claim 1, further comprising:

heat processing the ~~fabricated~~ Bi ~~thin~~ film at a temperature within a range of 250 – 270 °C.

7. (Currently Amended) ~~The~~ A method of ~~claim 1~~ for fabricating a Bi film , ~~wherein a~~ comprising forming the Bi ~~thin~~ film ~~is formed~~ onto a substrate ~~in the~~ at a deposition ~~ratio~~ rate of 0.1 – 10 μm/min by ~~a~~ sputtering ~~method~~ in a ~~vacuumized~~ vacuum chamber.

8. (Currently Amended) The method of claim 7, wherein the ~~fabricated~~ Bi ~~thin~~ film has a MR (magnetoresistance) ratio of approximately 600 % at room temperature and not less than 30,000 % at 4 K ~~when~~ under a magnetic field of 9T ~~is applied~~.

9. (Currently Amended) The method of claim 7, further comprising:

heat processing the ~~fabricated~~ Bi ~~thin~~ film at a temperature within a range of 250 – 270 °C.

10. (Currently Amended) A magnetic field sensor comprising a mesa and a magnetic substance, wherein ~~a~~ the mesa comprises the Bi ~~thin~~ film fabricated by the method of claim 1 ~~or claim 7 is fabricated as a mesa by photolithography or electron beam lithography~~, and ~~a~~ the magnetic substance having ~~great~~ a saturation magnetization and a permeability is formed at ~~both~~ plurality of sides of the ~~Bi~~ mesa as a flux concentrator.

11. (Currently Amended) A spin FET (spin-polarized field effect transistor), comprising:

a gate;

an insulating layer ~~formed~~ on ~~the~~ a ~~bottom~~ portion of the gate;

a source/drain region ~~formed~~ at ~~left/right sides~~ a side of the insulating layer ~~by using magnetic metal or a magnetic semiconductor having great spin polarization~~; and

a spin channel ~~formed by using a~~ comprising the Bi ~~thin~~ film fabricated according to claim 1 ~~or claim 7~~.

12. (Currently Amended) A spin memory device, wherein ~~a~~ the spin memory device ~~includes~~ comprises a gate, a Bi spin channel fabricated by ~~a~~ the method according to claim 1 ~~or claim 7 and formed~~ on ~~the bottom~~ a portion of the gate and a source/drain region ~~formed~~ at ~~left/right sides~~ a side of the spin channel, ~~by using magnetic metal or a magnetic semiconductor having great spin polarization, and~~ wherein the spin memory device controls resistance by an external magnetic field.

13. (New) A magnetic field sensor comprising a mesa and a magnetic substance, wherein ~~a~~ the mesa comprises the Bi film fabricated by the method of claim 7, and ~~a~~ the magnetic substance

having a saturation magnetization and a permeability is formed at plurality of sides of the mesa as a flux concentrator.

14. (New) A spin FET (spin-polarized field effect transistor), comprising:
a gate;
an insulating layer on a portion of the gate;
a source/drain region at a side of the insulating layer; and
a spin channel comprising the Bi film fabricated according to claim 7.

15. (New) The spin FET of claim 11, wherein the source/drain region is formed at a left or right side of the insulating layer by using magnetic metal or a magnetic semiconductor having great spin polarization.

16. (New) The spin FET of claim 14, wherein the source/drain region is formed at a left or right side of the insulating layer by using magnetic metal or a magnetic semiconductor having great spin polarization.

17. (New) A spin memory device, wherein the spin memory device comprises a gate, a Bi spin channel fabricated by ~~a~~ the method according to claim 7 on a portion of the gate and a source/drain region at a side of the spin channel, wherein the spin memory device controls resistance by an external magnetic field.

18. (New) The spin memory device of claim 12 wherein the source/drain region is formed at a side of the spin channel by using magnetic metal or a magnetic semiconductor having a spin polarization.

19. (New) The spin memory device of claim 17 wherein the source/drain region is formed at a side of the spin channel by using magnetic metal or a magnetic semiconductor having a spin polarization.

20. (New) The magnetic field sensor of claim 10, wherein the mesa produced by photolithography or electron beam lithography.

21. (New) The magnetic field sensor of claim 13, wherein the mesa produced by photolithography or electron beam lithography.